Rocky Flats Environmental Technology Site

Building 776/777 2nd Floor Final Survey Report

Survey Unit:
776037

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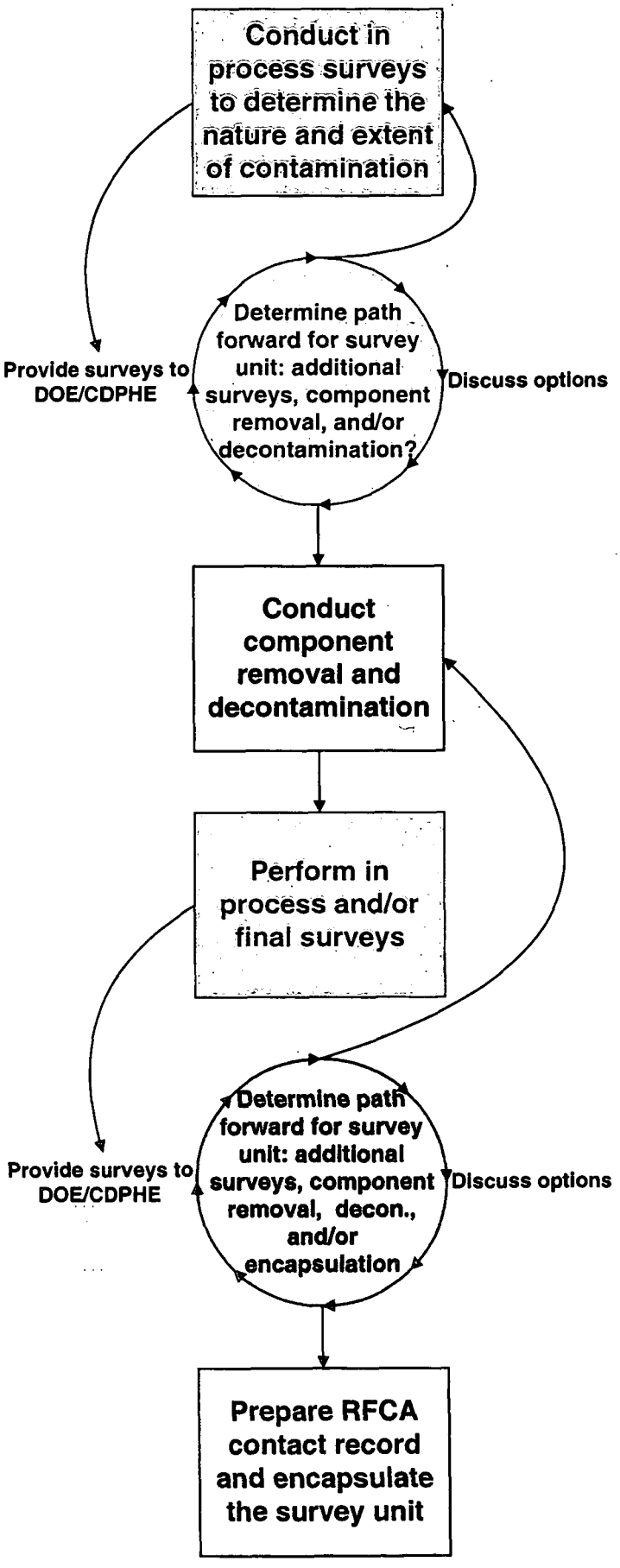
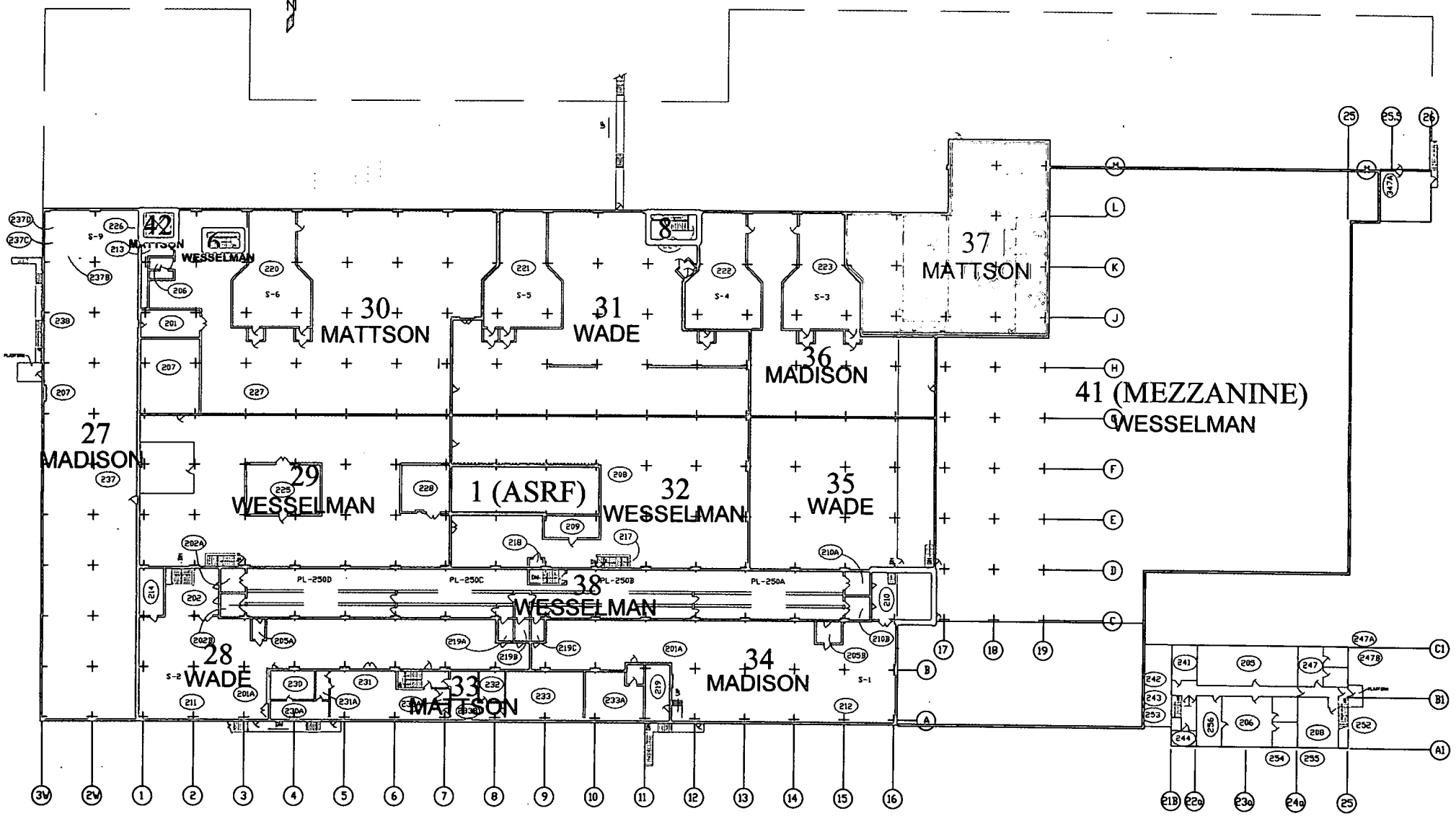
October 2004

1/24


Conduct in process surveys to determine the nature and extent of contamination
Determine path forward for survey unit: additional surveys, component removal, and/or decontamination?
Provide surveys to DOE/CDPHE
Discuss options
Conduct component removal and decontamination
Perform in process and/or final surveys
Determine path forward for survey unit: additional surveys, component removal, decon., and/or encapsulation
Provide surveys to DOE/CDPHE
Discuss options
Prepare RFCA contact record and encapsulate the survey unit

3

B776/777 INITIAL SURVEY UNITS
2nd FLOOR



Final Survey for Survey Unit 776037

4

FINAL SURVEY REPORT
Survey Unit 776037

1) Introduction and Scope

A pre-demolition radiological survey (PDS) is performed prior to building demolition to define the radiological conditions of a facility. A PDS survey for survey unit 776037 has been completed in accordance with guidelines outlined in the "Radiological Pre-Demolition Survey Plan Building 776/777". Based on the results it is recommended that no further remediation is needed, and that the survey unit may be encapsulated in preparation for demolition. Isolation controls shall be put in place to prevent recontamination of the area. This report has been prepared in accordance with sections 3 and 8 of the "Radiological Pre-Demolition Survey Plan Building 776/777".

Survey unit 776037 is bounded by column lines 15-19 and H-N. This area is part of the original building and is located in the northeast corner of room 208, including rooms 235, 235A, 236 and 239 on the second floor of building 776.

2) PDS Methods and Techniques

The PDS survey results determine the Average Surface Contamination Value ($ASCV_u$) and source term for the survey unit. These parameters are used to determine whether the building may be demolished within the limits outlined in the "Radiological Pre-Demolition Survey Plan Building 776/777".

To obtain a statistically powerful number of data points, a minimum of 30 survey points were selected per survey unit. A random start, systematic grid method was used to identify the survey point locations. Three types of surveys are performed at each survey point as follows:

a) Painted surfaces are evaluated for potential contamination under coatings using sodium iodide (NaI) gamma detectors attached to a single channel analyzer windowed for the 59 keV gamma-ray (Am^{241}).
b) Direct alpha surface contamination measurements are performed using a NE Electra survey instrument with attached DP-6 probe. This data may be compared to the NaI survey data to show the fraction of contamination that is directly on the surface verses imbedded in the material matrix.
c) Removable surface alpha contamination surveys were performed by swiping the survey point with a 47mm filter paper then counting the filter paper on a SAC-4 alpha counter. This data may be used to gauge the effectiveness of encapsulation following the PDS.

To conservatively determine the final Average Surface Contamination Value ($ASCV_u$) for the survey unit, the source term associated with inaccessible areas of the survey unit (as described in section 4 of this report) is added to the source term calculated by the PDS survey.

5

3) ALARA Post Remediation Surveys

In addition to the PDS used to determine the Average Surface Contamination Value ($ASCV_u$) and source term for the survey unit, surveys were taken to determine the effectiveness of remediation efforts. Remediation is performed to demonstrate a reasonable best effort is made to maintain releases to the environment and doses to the workers ALARA. Remediation may include decontamination, or removal of parts of the structure such as block wall removal.

a) Floors

The floors of survey unit 776037 consist of painted concrete and sheet metal. Measurements collected on the floor of 776037 show that the majority of the floor has activity below the MDA of the NaI instruments. Survey grids 37-19, 37-43 had elevated activities during the in-process characterization survey. The elevated readings in grid 37-19 were found to originate from a contaminated seam along the north wall of the survey unit. The elevated readings in grid 37-43 were found to originate from a penetration in the floor. Remediation of the elevated floor areas is discussed in the section on inaccessible areas below. Surveys in each grid were performed by taking five contact readings on the floor around the inaccessible areas and averaging the readings to obtain an average contamination level for the grid. These new values were used in table 1 below. The follow-up surveys yield an apparent decontamination factor (DF) of 1.53, or a source term reduction of 35%.

Table 1:
Floor Remediation Results

	Pre-Remediation (In-process)	Post-Remediation (Follow-up)
Maximum (dpm/100cm^2)	290,974	65,145
Minimum (dpm/100cm^2)	8,723	8,723
Average (dpm/100cm^2)	25,450	15,880
Average (μCi/m^2)	1.1	0.72
Source Term (μCi)	475.2	311.04

b) Walls

Walls of survey unit 776037 were surveyed during the in process characterization using a 3.3 foot wide by 3.3 foot high grid system. The original survey involved taking readings 30 cm (~12 inches) from the wall surface. This technique is susceptible to over estimating contamination levels due to shine from nearby hotspots. The follow up survey consisted of taking contact readings in each elevated grid to determine the actual contamination levels in the grid.

Wall section 1-B was not surveyed with NaI probes during the in-process survey because it was believed to be a bare wall with no coatings. It was discovered that this wall had a

thin film of fixative on it as a result of an asbestos abatement. The wall was scanned and contact readings were taken at 3-foot intervals. The wall was found to have an average contamination level of 131,186 dpm/100cm^2. Wall sections 1-A and 1-B are load-bearing walls that support the roof of the vaults. The lower portion of these wall sections are already painted orange in survey units 776015 and 776016 on the first floor.

Final survey points #5 and #6 fall on this wall and the levels are consistent with those found in the follow-up survey.

No remediation was performed on the walls, but the follow up readings provided lower estimated contamination levels on walls 1A, 2A and 2B.

Table 2:
Wall Remediation Results

	Pre-Remediation (In-process)	Post-Remediation
Maximum Wall Section Average (dpm/100cm^2)	131,186	131,186
Minimum Wall Section Average (dpm/100cm^2)	4,953	4,953
Average (dpm/100cm^2)	29,819	19,516
Average (μCi/m^2)	1.34	0.88
Source Term (μCi)	172	150.3

c) Ceilings

No ceiling survey points were determined to require remediation during the in-process characterization of survey unit 776037. All values reported are less than the MDA of the Sodium Iodide.

During the PDS survey some areas of the ceiling could not be reached safely with the DP-6 probe attached to a NE Technologies Electra because there was no way to position a man-lift or ladder safely under the survey point. In these areas the Ludlum Model 44-17 Sodium Iodide was attached to a pole and contact readings were taken by pressing the probe against the ceiling. The critical level of the sodium iodide was used if no contamination was detected. These readings provide a conservative estimate of potential total contamination levels in these areas.

Table 3:
Ceiling Remediation Results

	Pre-Remediation (In-process)	Post-Remediation
Maximum (dpm/100cm^2)	24,294	24,294
Minimum (dpm/100cm^2)	7,912	7,912
Average (dpm/100cm^2)	12,900	12,900
Average (μCi/m^2)	0.58	0.58
Source Term (μCi)	250.6	250.6

4) Inaccessible Areas

a) Floors

Two inaccessible areas were identified on the floor of survey unit 776037 located in survey grid 37-19 and 37-43. The contaminated seam along the north wall in grid 37-19 had elevated sodium iodide readings that were believed to originate from the joint material that filled the seam. Initial estimates indicated contamination levels up to 1,661,670 dpm/100cm^2. As the material was removed sodium iodide readings increased. It was discovered that some of the elevated readings from the original survey were the result of "shine" from the top of the north wall of room 430 below. The highest reading on the material removed from the seam was 568,875 dpm/100cm^2. The average value for the joint material that was removed from the seam was 388,223 dpm/100cm^2 (17.49μCi/m^2). Approximately 15 feet (4.7 m) of this material was removed from a crevice that was 6 inches (0.15m) deep and contaminated on both sides. The amount of activity removed from the seam on the north wall is estimated as, 1.41 m^2 x 17.49μCi/m^2 = 24.7μCi.

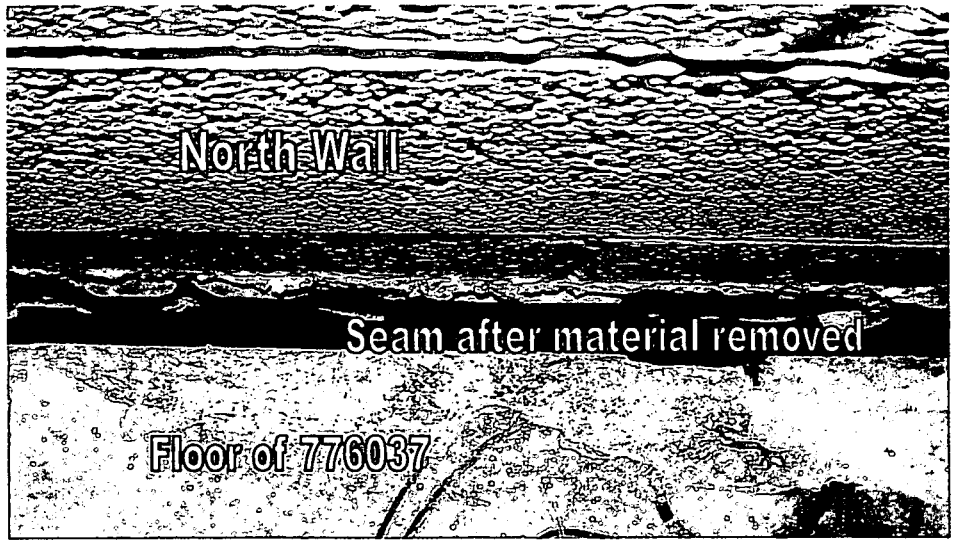
In grid 37-43, contaminated pieces of wood were found inside of the penetration that led down to the first floor. The boards were 2 inches (0.05m) thick, 12 inches (0.3m) wide and approximately 18 inches (0.46 m) long. The four boards were contaminated to an average level of 400,659 dpm/100cm^2 (18μCi/m^2). The boards were removed and only "shine" from survey unit 776016 was detected in the area the boards had occupied. The amount of activity removed with the boards is estimated as:
4 Boards X 0.14m^2 per board X 18μCi/m^2 = 10μCi.

Table 4:
Floor Inaccessible Areas Remediation Results

	Pre-Remediation (In-process)	Post-Remediation
Maximum (dpm/100cm^2)	1,661,670	568,875*
Minimum (dpm/100cm^2)	801,318	207,570**
Average (dpm/100cm^2)	1,200,855	388,223
Average (μCi/m^2)	54.1	17.48
Source Term (μCi)	86.3	51.6***

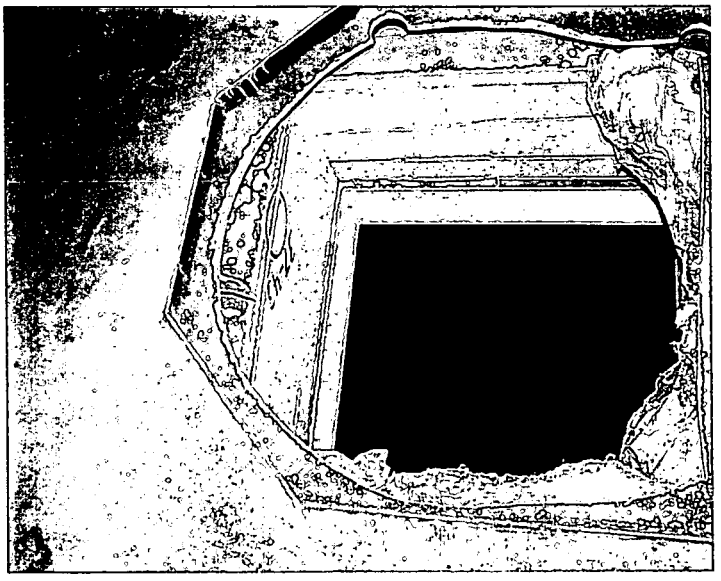
*All contaminated material was removed. Values found on joint material assumed to be same as residue in lower portion of seam along north wall.
**Lowest value for removed boards cannot be presented because no surface remains.
*** Value obtained by subtracting estimated inventory removed from estimated Pre remediation inventory

Picture 1.0 Seam after remediation



Picture 2.0 Seam along north wall viewed from room 430

Picture 3.0 Floor penetration in grid 37-43 from above



Picture 4.0 Penetration into grid 37-43 from room 430

b) Walls

No inaccessible areas were identified on the walls of survey unit 776037.

c) Ceilings

No inaccessible areas were identified on the ceiling of survey unit 776037.

5.) PDS Survey Results Summary

The values for the accessible areas and inaccessible areas were summed and divided by the total area for the survey unit to calculate the "Average Surface Contamination Value" ($ASCV_u$) and source term for the survey unit. The results are summarized in Table 5 below:

FINAL SURVEY REPORT
Survey Unit 776037

Table 5:
PDS Final Results

	Final Results
776037 Source Term Inaccessible Areas (μCi)	51.6
776037 Source Term Accessible Areas (μCi)	772.9
776037 Total Source Term (μCi)	824.5
Survey Unit Area (m^2)	1173
$ASCV_u$ ($\mu Ci/m^2$)	0.70
$ASCV_u$ ($dpm/100cm^2$)	15,605

Table 6 Notes:

a) Inaccessible areas source term from Section 4 of this report.

b) Accessible area source term is the sum of source terms attributed to floors (table 1), walls (table 2) and ceiling (table 3).

c) Total Source Term equals the sums of the source terms of Inaccessible Area + Accessible Area.
Total Source Term = (51.6 + 772.9) μCi = 824.5μCi

d) Average Surface Contamination for the Survey Unit ($ASCV_u$) in $dpm/100cm^2$ equals:
$ASCV_u$ = (824.5 μCi)(22,200 $dpm/100cm^2$ / 1 $\mu Ci/m^2$) / (1,173 m^2)= 15605 $dpm/100cm^2$

12

Total Surface Activity Measurements

30	30	
Number Required	Number Obtained	
MIN	2,518	dpm/100 cm^2
MAX	188,334	dpm/100 cm^2
Average	14,629	dpm/100 cm^2
STD DEV	33,733	dpm/100 cm^2

Total Surface Area	1173	m^2
Inaccessible Areas	51.6	µCi, Alpha
Accessible Surfaces	772.9	µCi, Alpha

Total Inventory	824.5	µCi, Alpha
$ASCV_u$ (Excluding subsurface contamination)	14,629	dpm/100cm^2
$ASCV_u$ (Excluding subsurface contamination)	0.66	µCi per m^2
$ASCV_u$	15,605	dpm/100cm^2
$ASCV_u$	0.70	µCi per m^2

Sample Location Number	NaI Activity Measurements				
	Measurement Used	Comment	Surface	Coating	(dpm/100 cm^2)
1	Sodium Iodide	N/A	ceiling	Thin/No Paint	26,657
2	Sodium Iodide	N/A	ceiling	Thin/No Paint	4,463
3	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
4	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
5	Sodium Iodide	N/A	wall	Thin/No Paint	188,334
6	Sodium Iodide	N/A	wall	Thin/No Paint	20,050
7	Sodium Iodide	N/A	wall	Thin/No Paint	34,769
8	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
9	Sodium Iodide	N/A	floor	Thin/No Paint	2,518
10	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
11	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
12	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
13	Sodium Iodide	N/A	ceiling	Thin/No Paint	6,838
14	Sodium Iodide	N/A	ceiling	Thin/No Paint	15,299
15	Sodium Iodide	N/A	ceiling	Thin/No Paint	5,563
16	Sodium Iodide	N/A	ceiling	Thin/No Paint	4,463
17	Sodium Iodide	N/A	ceiling	Thin/No Paint	6,954
18	Sodium Iodide	N/A	ceiling	Thin/No Paint	20,862
19	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
20	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
21	Sodium Iodide	N/A	floor	Thin/No Paint	4,309
22	Sodium Iodide	N/A	floor	Thin/No Paint	2,518
23	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
24	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
25	Sodium Iodide	N/A	wall	Thin/No Paint	4,463
26	Sodium Iodide	N/A	wall	Thin/No Paint	9,156
27	Sodium Iodide	N/A	wall	Thin/No Paint	12,285
28	Sodium Iodide	N/A	ceiling	Thin/No Paint	4,463
29	Sodium Iodide	N/A	ceiling	Thin/No Paint	16,573
30	Sodium Iodide	N/A	ceiling	Thin/No Paint	4,463
				MIN	**2,518**
				MAX	**188,334**
				AVERAGE	**14,629**
				SD	**33,733**

776037
NaI Survey Summary

776037 Post remediation Survey Results

Location #	Column letter	Column Number	North	East	Elevation	Gross Counts	In-Process Dpm/100cm2	Post Remediation Dpm/100cm2
37-1	M	17	2	5	0	1052	25,953	25,953
37-2	M	17	17	15	0	664	12,170	12,170
37-3	M	18	17	6	0	603	12,170	12,170
37-4			Inaccessible				N/A	N/A
37-5			Inaccessible				N/A	N/A
37-6	L	18	5	5	0	193	8,723	8,723
37-7	L	17	14	16	0	216	8,723	8,723
37-8	L	17	16	3	0	1011	18,812	18,812
37-9	L	17	8	2	0	933	12,170	12,170
37-10	L	17	5	16	0	185	8,723	8,723
37-11	L	18	15	5	0	218	8,723	8,723
37-12			Inaccessible				N/A	N/A
37-13	K	18	15	18	0	209	8,723	8,723
37-14	K	18	17	3	0	518	12,170	12,170
37-15	K	17	14	14	0	655	12,170	12,170
37-16	K	17	15	5	0	597	12,170	12,170
37-17	K	18	4	4	0	521	12,170	12,170
37-17A	K	16	18	11	0	1056	11,767	11,767
37-17B	K	16	18	16	0	852	11,767	11,767
37-17C	K	16	19	19	0	293	31,895	31,895
37-17D	K	16	19	15	0	206	31,895	31,895
37-17E	K	16	19	13	0	197	31,895	31,895
37-17F	K	16	18	18	0	765	11,767	11,767
37-18	K	16	15	5	0	360	8,723	8,723
37-19	K	15	17	11	0	3398	290,974	28,885
37-19A	K	15	16	13	0	1150	11,767	11,767
37-19B	K	16	19	12	0	2674	189,887	28,885
37-20	K	15	19	8	0	268	31,895	31,895
37-20A	K	15	7	15	0	1271	11,767	11,767
37-21	K	15	6	5	0	1210	11,767	11,767
37-22	K	15	4	19	0	1075	11,767	11,767
37-23	K	16	5	5	0	395	8,723	8,723
37-24	K	16	5	15	0	345	8,723	8,723
37-25	K	17	5	5	0	617	12,170	12,170
37-25H	K	16	HOLE IN FLOOR			1277	65,145	65,145
37-26	K	17	5	15	0	636	12,170	12,170
37-27	K	18	4	4	0	521	12,170	12,170
37-28	K	18	8	15	0	234	8,723	8,723
37-28A	K	18	5	15	0	251	8,723	8,723

776037 Post remediation Survey Results

Location #	Column letter	Column Number	North	East	Elevation	Gross Counts	In-Process Dpm/100cm2	Post Remediation Dpm/100cm2
37-29	J	18	15	15	0	239	8,723	8,723
37-30	J	18	15	5	0	545	12,170	12,170
37-31	J	17	15	15	0	615	12,170	12,170
37-32	J	17	18	6	0	677	12,170	12,170
37-33	J	16	16	13	0	300	8,723	8,723
37-33H	J	16	HOLE IN FLOOR			905	12,170	12,170
37-34	J	16	15	5	0	396	8,723	8,723
37-35	J	15	18	13	0	1413	13,823	13,823
37-36	J	15	15	9	0	1127	11,767	11,767
37-37	J	15	3	9	0	1375	11,767	11,767
37-38	J	15	2	11	0	1406	12,845	12,845
37-39	J	16	1	1	0	749	12,170	12,170
37-39H	J	16	HOLE IN FLOOR			1027	21,599	21,599
37-40	J	16	6	14	0	378	8,723	8,723
37-41	J	17	15	5	0	715	12,170	12,170
37-42	J	17	10	15	0	646	12,170	12,170
37-43	J	18	15	4	0	653	12,170	12,170
37-43M	J	18	METAL OVER HOLE			1578	194,040	22,966
37-44	J	18	15	15	0	231	8,723	8,723
37-45	H	18	15	15	0	280	8,723	8,723
37-46	H	18	15	5	0	654	12,170	12,170
37-47	H	17	15	15	0	701	12,170	12,170
37-48	H	17	16	5	0	731	12,170	12,170
37-49	H	16	15	14	0	352	49,055	49,055
37-50	H	16	14	7	0	366	60,313	60,313
37-51	H	15	11	17	0	1204	11,767	11,767
37-52	H	15	14	8	0	1200	11,767	11,767
37-53	M	17	5	5	20	82	23,809	23,809
37-54	M	17	5	15	20	72	17,374	17,374
37-55	M	18	8	2	20	81	23,165	23,165
37-56		Inaccessible due to wall and plenum					N/A	N/A
37-57							N/A	N/A
37-58	L	18	8	2	20	79	21,878	21,878
37-59	L	17	18	13	20	47	10,036	10,036
37-60	L	17	15	4	20	39	10,036	10,036
37-61	L	17	3	4	20	47	10,036	10,036
37-62	L	17	3	18	20	35	10,036	10,036
37-63	L	18	2	7	20	25	10,036	10,036
37-64		Inaccessible due to wall and plenum					N/A	N/A

776037 Post remediation Survey Results

Location #	Column letter	Column Number	North	East	Elevation	Gross Counts	In-Process Dpm/100cm2	Post Remediation Dpm/100cm2
37-65	K	18	15	11	20	51	10,036	10,036
37-66	K	18	13	2	20	51	10,036	10,036
37-67	K	17	19	15	14	101	14,660	14,660
37-68	K	17	18	4	14	73	7,912	7,912
37-69	K	16	18	12	14	122	23,457	23,457
37-70	K	16	14	5	14	99	13,823	13,823
37-71	K	15	19	15	14	60	7,912	7,912
37-72	K	15	16	6	14	95	12,147	12,147
37-73	K	15	6	5	14	91	10,472	10,472
37-74	K	15	8	18	14	74	7,912	7,912
37-75	K	16	7	7	14	74	7,912	7,912
37-76	K	16	5	15	14	109	18,011	18,011
37-77	K	17	7	4	14	70	7,912	7,912
37-78	K	17	8	18	14	70	7,912	7,912
37-79	K	18	2	4	20	64	12,226	12,226
37-80	K	18	7	12	20	48	10,036	10,036
37-80A	K	18	3	15	20	67	14,157	14,157
37-81	J	18	15	15	20	50	10,036	10,036
37-82	J	18	13	4	20	55	10,036	10,036
37-83	J	17	12	14	14	87	8,796	8,796
37-84	J	17	18	8	14	115	20,525	20,525
37-85	J	16	14	12	14	73	7,912	7,912
37-86	J	16	17	3	14	77	7,912	7,912
37-87	J	15	18	13	14	95	12,147	12,147
37-88	J	15	18	8	14	80	7,912	7,912
37-89	J	15	5	9	14	106	16,755	16,755
37-90	J	15	5	17	14	65	7,912	7,912
37-91	J	16	8	9	14	100	14,242	14,242
37-92	J	16	6	13	14	111	18,849	18,849
37-93	J	17	8	3	14	92	10,891	10,891
37-94	J	17	4	17	14	93	11,309	11,309
37-95	J	18	14	5	20	78	21,235	21,235
37-96	J	18	8	15	20	74	18,661	18,661
37-97	H	18	14	15	20	70	16,087	16,087
37-98	H	18	14	8	20	77	20,591	20,591
37-99	H	17	16	16	14	124	24,294	24,294
37-100	H	17	18	4	14	91	10,472	10,472
37-101	H	16	17	16	14	90	10,053	10,053
37-102	H	16	17	6	14	73	7,912	7,912

776037 Post remediation Survey Results

Location #	Column letter	Column Number	North	East	Elevation	Gross Counts	In-Process Dpm/100cm2	Post Remediation Dpm/100cm2
37-103	H	15	12	19	14	64	7,912	7,912
37-104	H	15	15	9	14	89	9,634	9,634

37-1 to 37-52 are floors
37-53 to 37-104 are ceilings

Data and Sodium Iodide Instrument Information

Survey Area:	2nd Floor	Survey Unit:	776037	Survey Date(s):	10/03/04

Instrument Specifications

Instrument #	1	
Meter Model:	Ludlum 2350-1	Ludlum 2350-1
Meter Serial #:	193699	203457
Detector Model:	Ludlum 44-117	Ludlum 44-117
Detector #:	15157	B940T
Detector Size (cm^2):	17.8	125
Calibration Due Date:	3/2/05	12/3/04
Count Time (min)	5	5
Contact Efficiency	7.90%	6.05%

Ratio Used

Pu to Am - 241	8.1

Comments

In cases where the critical level is greater than the calculated dpm/100cm2, the critical level will be used for statistical analysis.

Count Times for backgrounds and samples are equal.

Attenuation Factors: Contamination is assumed to be in a thin layer of fixative on outer surface of wall

Background (Gross)

Instrument #	1	2
Gamma (Ceilings)	274	2522
Gamma (Floors)	N/A	7387
Gamma (Block Walls)	767	N/A
Gamma (Other Walls)	N/A	N/A

Background (cpm)

Instrument #	1	2
Gamma (Ceilings)	54.8	504.4
Gamma (Floors)	N/A	1477.4
Gamma (Block Walls)	153.4	N/A
Gamma (Metal Walls)	N/A	N/A

Efficiencies (cpm/dpm)

Instrument #	1	2
Thin/No Paint	0.079	0.060
Epoxy	0.064	0.049
Other	0.075	0.057

Coatings	Thickness (Inches)
Thin/No Paint	0.007
Epoxy	0.250
Other	0.06

Total Activity Estimates Using Sodium Iodide Instruments

Survey Area:	2nd Floor	Survey Unit:	776037	Survey Date(s):	10/03/04

Sample Location #	RCT ID #	Instrument #	Gross Counts	Critical Level (dpm/100cm2)	Total Alpha (dpm/100cm2)
1	1	1	504	4,463	26,657
2	1	1	298	4,463	4,463
3	1	1	133	4,463	4,463
4	1	2	2389	4,309	4,309
5	1	1	2392	7,467	188,334
6	1	1	940	7,467	20,050
7	1	1	1,067	7,467	34,769
8	1	2	6,619	4,309	4,309
9	1	2	1,807	2,518	2,518
10	1	2	3,792	4,309	4,309
11	1	2	2,936	4,309	4,309
12	1	1	306	4,463	4,463
13	1	1	333	4,463	6,838
14	1	1	406	4,463	15,299
15	1	1	322	4,463	5,563
16	1	1	165	4,463	4,463
17	1	1	334	4,463	6,954
18	1	1	454	4,463	20,862
19	1	1	162	4,463	4,463
20	1	2	3,900	4,309	4,309
21	1	2	3364	4,309	4,309
22	1	2	1926	2,518	2,518
23	1	1	200	4,463	4,463
24	1	1	214	4,463	4,463
25	1	1	239	4,463	4,463
26	1	1	353	4,463	9,156
27	1	1	380	4,463	12,285
28	1	1	308	4,463	4,463
29	1	1	417	4,463	16,573
30	1	1	298	4,463	4,463

Total Surface Activity

Survey Area:		2nd Floor	Survey Unit:		776037				
Meter Model:		NE Electra w/ DP6 Probe					Dates Counted:	9/26/04	
Instrument #:		2405	n/a	n/a	n/a	n/a	A priori MDA:	94	
Cal. Due Date:		3/20/05	n/a	n/a	n/a	n/a	Avg. Local Bkgd	12.2	
Efficiency (c/d):		0.232	n/a	n/a	n/a	n/a	Avg. Efficiency	0.220	
Sample Location #	RCT ID #	Inst. #	Instrument (cpm)		Local Bkgd (cpm)		(dpm/100 cm^2)		
1	N/A	N/A	N/A		N/A		N/A		
2	N/A	N/A	N/A		N/A		N/A		
3	1	2405	13.0		4.0		38.8		
4	1	2405	16.0		10.0		25.9		
5	1	2405	19.0		14.0		21.6		
6	1	2405	54.0		7.0		202.6		
7	1	2405	15.0		7.0		36.4		
8	1	2405	26.0		8.0		81.8		
9	1	2405	20.0		13.0		31.8		
10	1	2405	21.0		7.0		63.6		
11	1	2405	15.0		11.0		18.2		
12	1	2405	11.0		8.0		13.6		
13	N/A	N/A	N/A		N/A		N/A		
14	N/A	N/A	N/A		N/A		N/A		
15	N/A	N/A	N/A		N/A		N/A		
16	N/A	N/A	N/A		N/A		N/A		
17	N/A	N/A	N/A		N/A		N/A		
18	N/A	N/A	N/A		N/A		N/A		
19	1	2405	51.0		10.0		186.4		
20	1	2405	25.0		18.0		31.8		
21	1	2405	30.0		17.0		59.1		
22	1	2405	36.0		9.0		122.7		
23	1	2405	15.0		8.0		31.8		
24	1	2405	19.0		19.0		0.0		
25	1	2405	13.0		12.0		4.5		
26	N/A	N/A	N/A		N/A		N/A		
27	N/A	N/A	N/A		N/A		N/A		
28	N/A	N/A	N/A		N/A		N/A		
29	N/A	N/A	N/A		N/A		N/A		
30	N/A	N/A	N/A		N/A		N/A		
						MIN	0.0		
						MAX	202.6		
						MEAN	57.1		
						SD	59.8		

Removable Activity

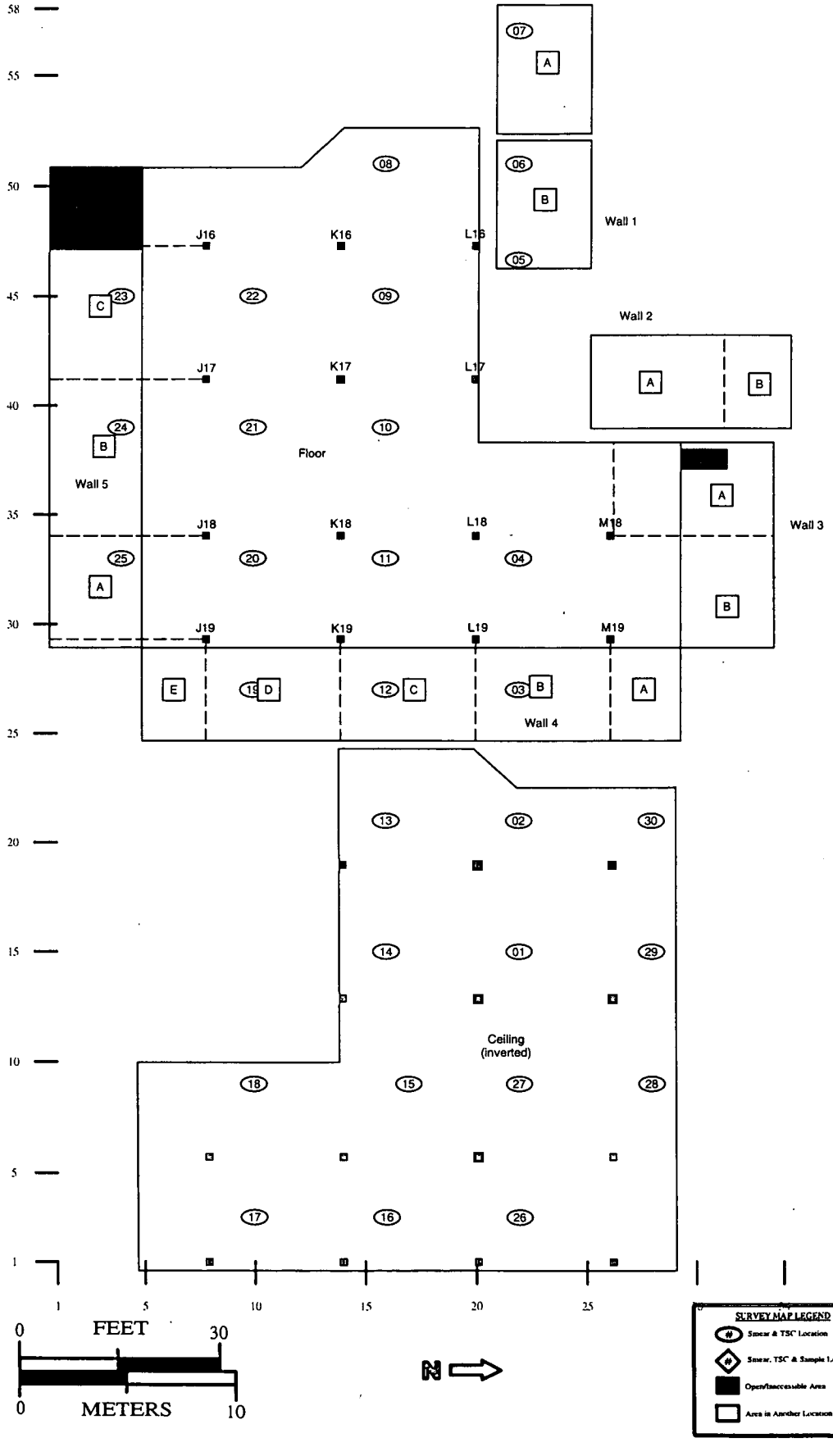
Survey Area:		2nd Floor	Survey Unit:		776037
Dates Counted:	10/3/04				
A priori MDA:	16				
Efficiency (c/d)	0.333				
Smear Location Number	Smear Results				
	RCT ID #	Serial Number	Gross (cpm)	Bkg.	(dpm/100 cm^2)
1	1	1479	1.0	0.2	2.4
2	1	828	0.0	0.3	-0.9
3	1	811	0.0	0.2	-0.6
4	1	1479	1.0	0.2	2.4
5	1	828	0.0	0.3	-0.9
6	1	811	0.0	0.2	-0.6
7	1	1479	0.0	0.2	-0.6
8	1	828	0.0	0.3	-0.9
9	1	811	0.0	0.2	-0.6
10	1	1479	0.0	0.2	-0.6
11	1	828	1.0	0.3	2.1
12	1	811	1.0	0.2	2.4
13	1	1479	1.0	0.2	2.4
14	1	828	0.0	0.3	-0.9
15	1	811	0.0	0.2	-0.6
16	1	1479	0.0	0.2	-0.6
17	1	828	0.0	0.3	-0.9
18	1	811	0.0	0.2	-0.6
19	1	1479	0.0	0.2	-0.6
20	1	828	1.0	0.3	2.1
21	1	811	0.0	0.2	-0.6
22	1	1479	2.0	0.2	5.4
23	1	828	0.0	0.3	-0.9
24	1	811	0.0	0.2	-0.6
25	1	1479	0.0	0.2	-0.6
26	1	828	0.0	0.3	-0.9
27	1	811	0.0	0.2	-0.6
28	1	1479	0.0	0.2	-0.6
29	1	828	0.0	0.3	-0.9
30	1	811	1.0	0.2	2.4
				MIN	-0.9
				MAX	**5.4**
				MEAN	**0.2**
				SD	1.6

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 707 CLUSTER

Survey Area: 2nd Floor **Survey Unit: 776037** **Classification: NA**
Building: 776
Survey Unit Description: Unit 37

Total Floor Area: 432 sq. m **Total Area: 1173 sq. m** **Random Start Grid Size: 6 x 6 sq. m**

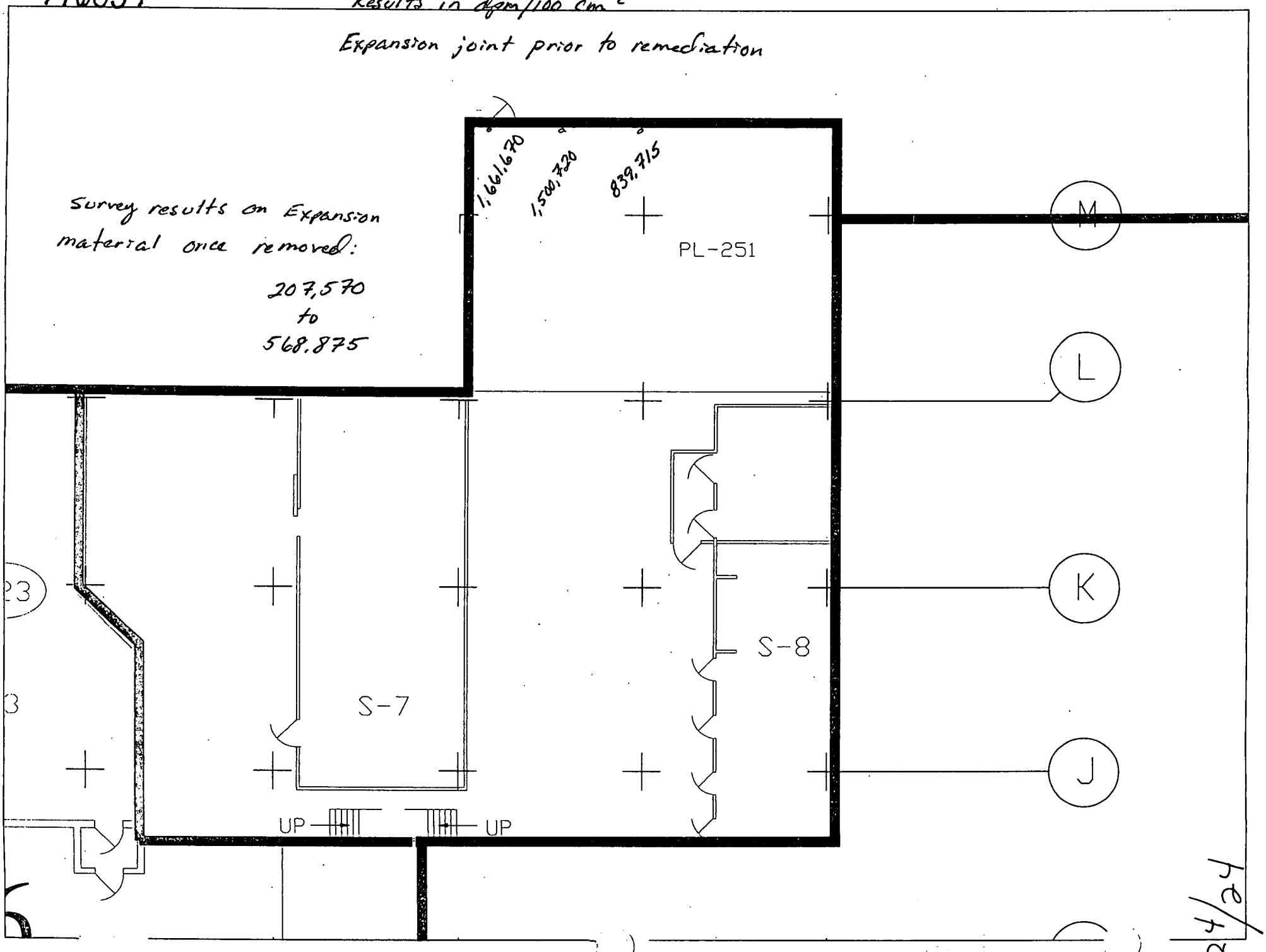
SURVEY UNIT 776037 - MAP 1 OF 1



776037

Results in dpm/100 cm²

Expansion joint prior to remediation



Survey results on Expansion material once removed:

207,570
to
568,875

2/4/24